AMENDMENTS TO THE CLAIMS

1. (Canceled).

2. (Currently Amended) A display apparatus comprising:

a display panel with a first side and a second side, having a plurality of imaging devices which emit light from both sides and are arranged in a two-dimensional matrix, ~~whose~~ wherein the display panel provides a display that can be observed from either side;

a pair of liquid crystal shutter means disposed in such a manner as to sandwich said display panel for switching on and off each respective imaging device;

display control means for displaying a first image in every frame or every field which can be seen from the one side of the display panel and a second image which can be seen from the other side of the display panel in every other frame or every other field; and

liquid crystal shutter control means for opening and closing said pair of liquid crystal shutter means in synchronism with the operation of said display control means in each frame scan or each field scan such that they do not open simultaneously, wherein said pair of liquid crystal shutter means are opened and closed by said liquid crystal shutter control means such that said first and second image can be observed as the original display on each side of said display panel, wherein

said display control means comprises a scan inverting circuit for inverting the direction of a horizontal scan along a row on said display panel in each frame or each field, which display a first display from the first side of the display panel and a second display from the second side of the display panel; and

said liquid crystal shutter control means controls the switching of the opening and closing of said pair of liquid crystal shutter means in response to an output from said scan inverting circuit.

3. (Currently Amended) A display apparatus, comprising:

a display panel with a first side and a second side, having a plurality of picture elements, each picture element having a plurality of imaging devices which emit light from both sides ~~each~~

~~including~~ and ~~a~~ respective plurality of display elements arranged in a two-dimensional matrix ~~as~~ to form a single unit, wherein display can be observed from either side of said display panel;

a pair of liquid crystal shutter means disposed in such a manner as to sandwich said display panel, said pair of liquid crystal shutter means being provided for said display panel comprising a plurality of said picture elements, wherein said pair of liquid crystal shutter means includes liquid crystal shutter means that can open and close in each single display picture element field corresponding to said single picture element;

liquid crystal shutter control means for controlling said liquid crystal shutter means such that a regular image can be observed simultaneously from both surfaces of said display panel, when one liquid crystal shutter corresponding to said single picture element field is put in a transmitting state, by putting the other liquid crystal shutter into a light-blocking state, and, when one liquid crystal shutter corresponding to the other single picture element field is put in the light-blocking state, by putting the other liquid crystal shutter into the transmitting state; and

display control means comprising a scan inverting circuit for inverting the direction of a horizontal scan along a row on said display panel in each picture element field for each horizontal scan period; and

said liquid crystal shutter control means controls the switching of the opening and closing of said pair of liquid crystal shutter means in response to an output from said scan inverting circuit.

4. (Currently Amended) The display apparatus according to claim 3, wherein said display control means causes said mirror image to be displayed alternately in each horizontal scan, which switches from the first side of the display panel to the second side of the display panel, by the one set and the other set of said single picture element.

5. (Canceled)

6. (Canceled)

7. (Currently Amended) A display apparatus comprising:

a display panel having a plurality of picture elements that perform display based on an input signal, said display panel being capable of display on both surfaces, namely a first surface and a second surface, thereof, using a picture element at a selected location;

first shutter means and second shutter means disposed on said first surface side and said second surface side, respectively, said first and second shutter means being capable of opening and closing for a single picture element or a plurality of picture elements;

and control means comprising display control means for performing display control such that a first display observed from said first surface side and a second display observed from said second surface side can be viewed as the same display, and shutter control means for controlling the opening and closing of shutters such that the display picture elements on said second surface side are screened by said second shutter means upon said first display, and the display picture elements on said first surface side are screened by said first shutter means upon said second display, wherein

said display control means, while switching the display period of said first display and said second display, performs display control such that said first display and said second display have a relationship where they are substantially mirror images of each other upon viewing said first display and said second display from either said first surface side or said second surface side with said shutters open, wherein

said display period, in which said first display and said second display are switched is a unit scan period based on a single field unit period or a single frame unit period based on a horizontal scan unit period,

said display control means comprises a scan inverting circuit for inverting the direction of a horizontal scan along a row on said display panel in each frame unit period or each field unit period; and

said shutter control means controls the switching of the opening and closing of said first and second shutter means in response to an output from said scan inverting circuit.

8. (Previously presented) The display apparatus according to claim 7, wherein said shutter control means controls the opening and closing of shutters in synchronism with the switching of said display period by said display control means.

9. (Currently Amended) The display apparatus according to claim 7, wherein said control means comprises:

a memory circuit for storing a data signal in each horizontal scan unit period of said picture element based on said input signal;

said scan inverting circuit for inverting the scan order in each said horizontal scan unit period;

a signal driving circuit for outputting a data signal to said display panel in order to perform the first display by said scan order and the second display by the inverted scan order based on said inverted scan signal at different times, based on said data signal stored in said memory circuit and said inverted scan signal outputted from said scan inverting circuit;

a signal inverting circuit for inverting the inverted scan signal outputted from said scan inverting circuit; and

a shutter switching circuit for controlling the opening and closing of said first shutter means and said second shutter means based on an output signal from said signal inverting circuit, wherein, upon alternatively displaying either said first display or said second display outputted from said signal driving circuit in each said horizontal scan unit period, the display surface side on which display has not been selected is screened alternatively by said first or second shutter means.

10. (Previously presented) The display apparatus according to any one of claims 7 to 9, wherein said first and second shutter means are formed by liquid crystal panels disposed on said first display surface and said second display surface, respectively, in an opposing manner.

11. (canceled)

12. (canceled)

13. (Currently Amended) The display apparatus according to any one of claims 7 to 9, wherein said control means comprises:

a memory circuit for storing a data signal in each horizontal scan unit period of said picture element based on said input signal;

a scan driving circuit for providing a scan driving signal to said display panel in the scan order of each said horizontal scan unit period;

a signal driving circuit for changing the output order of said image signal received from said memory circuit in each scan order, while outputting to said display panel an image signal that is used to perform a first image display by said scan order and a second image display by the inverted scan order based on an inverted scan signal at different times, based on said data signal stored in said memory circuit and the scan driving signal outputted from said scan driving circuit;

a signal inverting circuit for inverting the inverted scan signal outputted from said scan inverting circuit; and

a shutter switching circuit for controlling the opening and closing of said first shutter means and said second shutter means based on an output signal from said signal inverting circuit, wherein, upon alternatively displaying either said first display or said second display based on said image signal outputted from said signal driving circuit in each said horizontal scan unit period, the display surface side on which display has not been selected is screened alternatively by said first or second shutter means.

14. (Previously Presented) The display apparatus according to any one of claims 7 to 9, wherein said first and second shutter means are formed by liquid crystal panels disposed on said first display surface and said second display surface, respectively, in an opposing manner.

15. (Currently Amended) A display apparatus comprising:

a display panel having a plurality of picture elements, comprising at least a first picture element displaying toward a first display side and toward a second side of the display panel, and that perform display based on an input signal, said display panel being capable of display on both surfaces, namely a first surface and a second surface that is opposite to said first surface, thereof, using a picture element at a selected location;

first shutter means and second shutter means disposed on said first surface side and said second surface side, respectively, that are capable of opening and closing for a single picture element or a plurality of picture elements; and

control means comprising display control means for performing display control of a first display observed from said first surface side and a second display, which is different from said first display, observed from said second surface side, and shutter control means for controlling said shutter means such that a regular image can be observed simultaneously from both surfaces of said display panel, wherein the control of the opening and closing of shutters are performed such that the display picture elements on said second surface side are screened while transmitting the display picture elements on said first surface side by said second shutter means upon said first display, and such that the display picture elements on said first surface side are screened while transmitting the display elements on said second surface side by said first shutter means upon said second display,

said display control means comprises a scan inverting circuit for inverting the direction of a horizontal scan along a row on said display panel in each frame or each field; and

said shutter control means controls the switching of the opening and closing of said first and second shutter means in response to an output from said scan inverting circuit.

16. (Currently Amended) A display apparatus comprising:

a display panel having a first display surface and a second display surface and capable of display from both ~~surfaces, namely,~~ said first display surface and said second display surface, said display panel having a plurality of display elements;

first shutter means and second shutter means disposed on said first surface side and said second surface side, respectively, that are capable of opening and closing for each said display element; and

control means comprising display control means for performing display control of a first display observed from said first display surface side and a second display, which is different from said first display, observed from said second display surface side, and liquid crystal shutter control means for controlling said first and second shutter means such that a regular image can be observed simultaneously from both surfaces of said display panel by screening the display picture elements on said second display surface side while transmitting the display picture elements on said first display surface side by said second shutter means upon said first display, and by screening the display picture elements on said first display surface side while transmitting the display elements on said second display surface side by said first shutter means upon said second display,

said display control means comprises a scan inverting circuit for inverting the direction of a horizontal scan along a row on said display panel in each frame or each field; and

said liquid crystal shutter control means controls the switching of the opening and closing of said first and second shutter means in response to an output from said scan inverting circuit.

17. (Previously Presented) The display apparatus according to claim 2, wherein the display control means of said display panel and said shutter means are controlled by the same circuit.

18. (Previously Presented) A terminal apparatus comprising the display apparatus according to claim 2.

19. (Currently Amended) The display apparatus according to claim 10, wherein said control means comprises:

a memory circuit for storing a data signal in each horizontal scan unit period of said picture element based on said input signal;

a scan driving circuit for providing a scan driving signal to said display panel in the scan order of each said horizontal scan unit period;

a signal driving circuit for changing the output order of said image signal received from said memory circuit in each scan order, while outputting to said display panel an image signal that is used to perform a first image display by said scan order and a second image display by the inverted scan order based on an inverted scan signal at different times, based on said data signal stored in said memory circuit and the scan driving signal outputted from said scan driving circuit;

a signal inverting circuit for inverting the inverted scan signal outputted from said scan inverting circuit; and

a shutter switching circuit for controlling the opening and closing of said first shutter means and said second shutter means based on an output signal from said signal inverting circuit, wherein, upon alternatively displaying either said first display or said second display based on said image signal outputted from said signal driving circuit in each said horizontal scan unit period, the display surface side on which display has not been selected is screened alternatively by said first or second shutter means.

20. (Canceled).